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**United States Patent** [19][11] **Patent Number:** **5,970,858****Boehm et al.**[45] **Date of Patent:** **Oct. 26, 1999**[54] **TABLE TOP GRILL**[75] Inventors: **Michael W. Boehm**, Batavia; **Robert W. Johnson**, Naperville, both of Ill.[73] Assignee: **Tsann Kuen USA, Inc.**, Pasadena, Calif.[21] Appl. No.: **09/058,522**[22] Filed: **Apr. 10, 1998**[51] **Int. Cl.**<sup>6</sup> ..... **A47J 37/00**; A47J 37/06[52] **U.S. Cl.** ..... **99/446**; 99/400; 99/419;  
99/444; 99/448[58] **Field of Search** ..... 99/400, 444, 446,  
99/447, 448, 339, 345, 347, 349, 419[56] **References Cited****U.S. PATENT DOCUMENTS**

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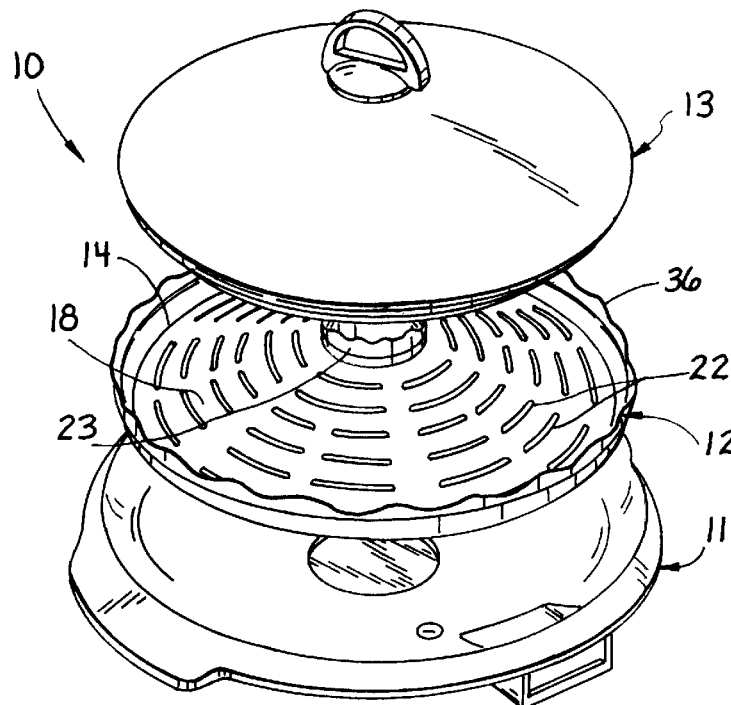
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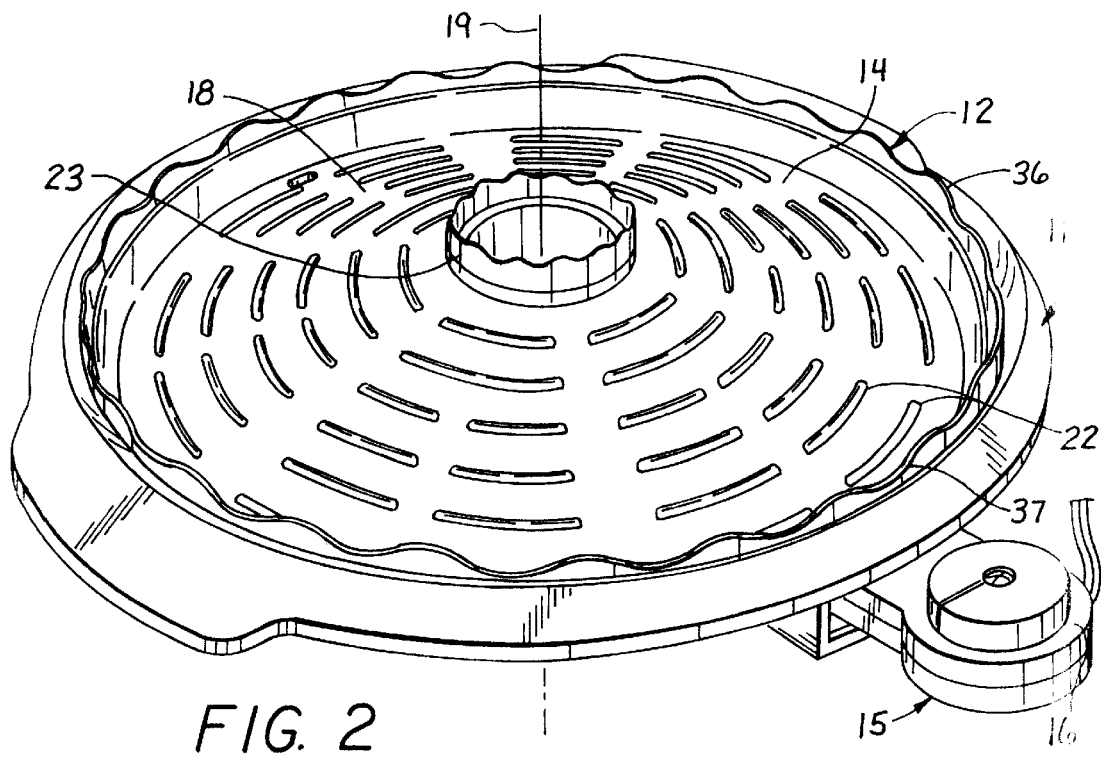
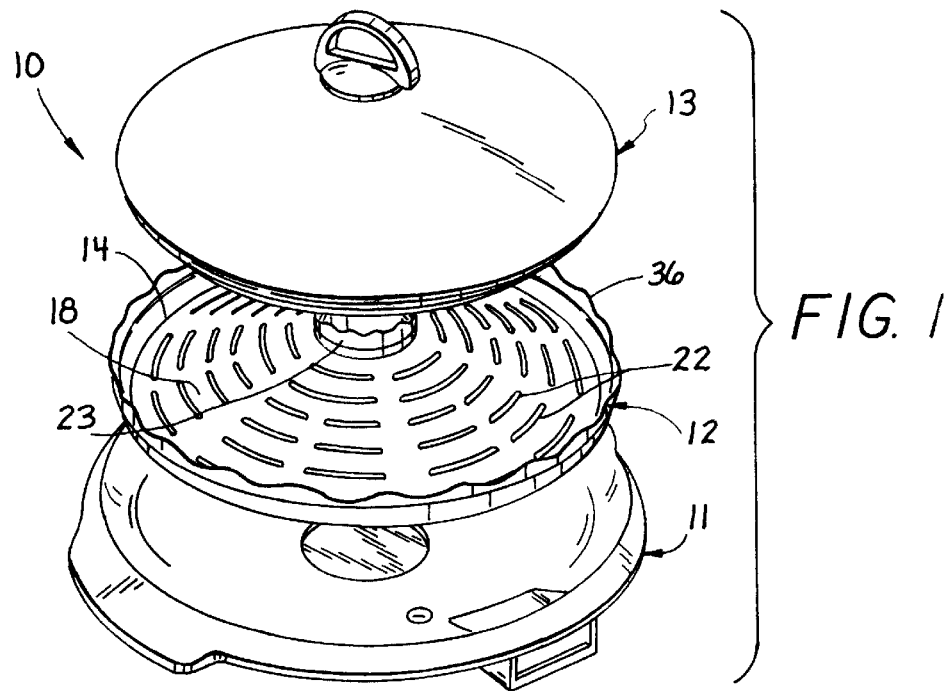
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*Primary Examiner*—David Lacey*Assistant Examiner*—Hao Mai*Attorney, Agent, or Firm*—Loyal McKinley Hanson[57] **ABSTRACT**

An appliance for cooking foodstuffs includes an electric grill plate adapted for use atop a horizontal table top surface, a plate component of the electric grill plate, and a frustum-shaped cooking surface on the plate component that slopes downwardly in all horizontal directions from a central vertical axis in order to promote drainage from foodstuffs during cooking. One embodiment also includes concentric ribs for holding the foodstuffs from sliding downwardly across the cooking surface, a two-position marinade cup mounted in a central chimney for containing marinade in a selected one of high-heat and low-heat proximity to the cooking surface of the plate component, a scalloped cup lip for receiving skewers, a perimeter fence for retaining the foodstuffs on the cooking surface, indentations along the fence for receiving the skewers and providing a flow path for steam to pass out from under the cover, a see-through glass cover, a removable grease tray, a cool-to-touch base, and a submersible electric grill plate.

**1 Claim, 2 Drawing Sheets**



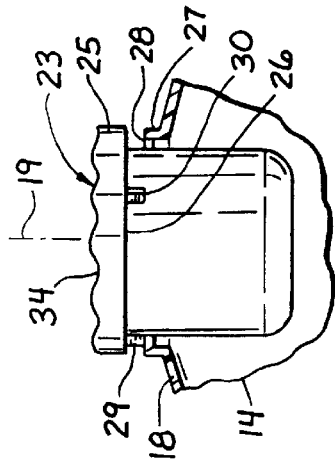


FIG. 5

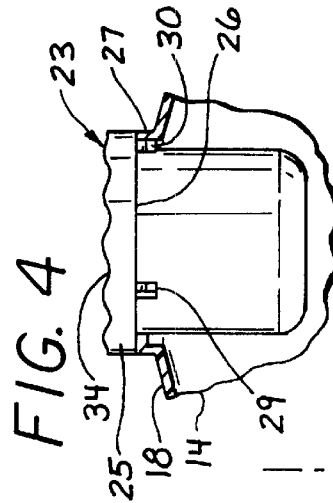


FIG. 4

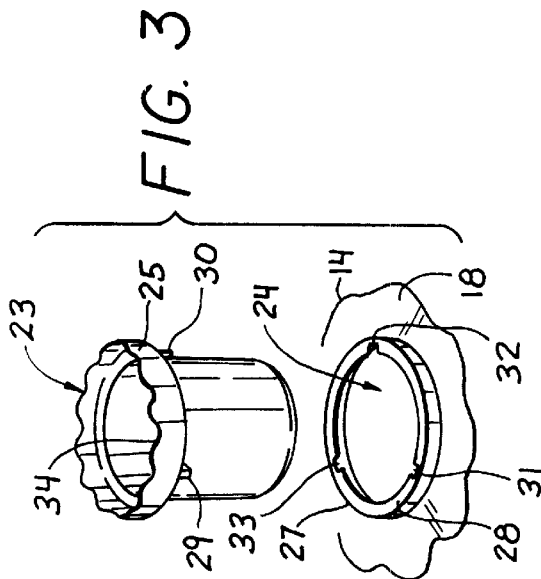


FIG. 3

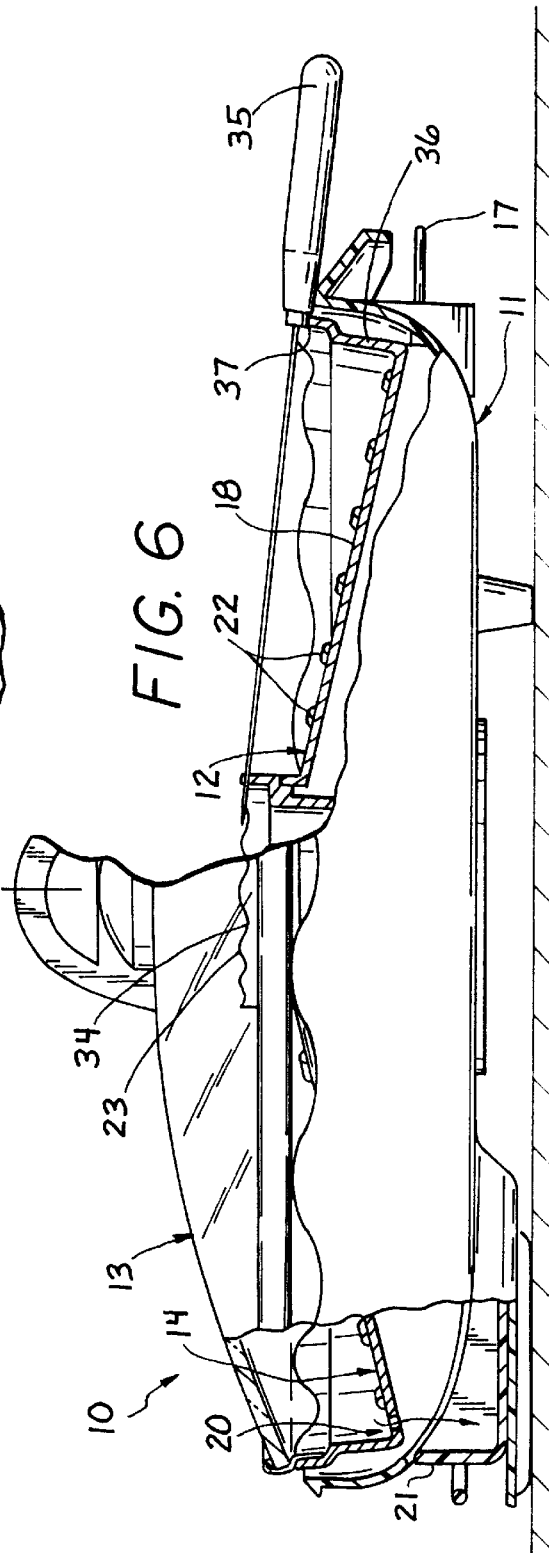


FIG. 6

## TABLE TOP GRILL

## BACKGROUND OF THE INVENTION

## 1. Technical Field

This invention relates generally to appliances for preparing foodstuffs, and more particularly to an electric table top grill having significantly improved features and functionality.

## 2. Description of Related Art

A table top grill provides a lightweight, portable cooking appliance that a user can conveniently transport manually for table top or counter top use. It includes a glass lid atop an electric cooking plate that is sometimes called an electric grill plate. The electric grill plate itself includes two basic components: a plate component with a cooking surface (usually non-stick), and an electric heating element component in heat conducting relation to the plate component. The user simply plugs the heating element component into an electric outlet, adjusts the heating element temperature control knob to a selected range, arranges foodstuffs on the non-stick cooking surface of the plate component, and then places the cover onto the plate component over the foodstuffs until all is cooked as desired.

Such cooking appliances enjoy popular approval. But consumers continue to look for new healthy culinary adventures that challenge current table top grill designs. Users want simpler, lighter, home-style cooking, ethnic breads/dishes, regional cooking, and fresh quality produce. They want the table top grill they use to help them create the new, interesting, and fun meals they envision. Thus, users seek improvements in existing table top grills.

## SUMMARY OF THE INVENTION

This invention addresses the need outlined above by providing an electric table top grill with various combinations of new features, including a frustum-shaped cooking surface that promotes drainage from foodstuffs during cooking. That feature combines in the illustrated grill with a pattern of concentric ribs for holding the foodstuffs from sliding downwardly across the cooking surface, a two-position marinade cup mounted in a central chimney for containing marinade in a selected one of high-heat and low-heat proximity to the cooking surface of the plate component, a scalloped cup lip for receiving kabob skewers, a perimeter fence along a lower marginal edge of the plate component for retaining the foodstuffs on the cooking surface, and indentations along the fence for receiving the skewers and providing a flow path for steam to pass out from under the cover. These features combine in a lightweight, portable electric table top grill with a see-through glass cover, removable grease tray, cool-to-touch base, and submersible electric grill plate.

To paraphrase some of the more precise language appearing in the claims, an appliance for cooking foodstuffs includes an electric grill plate adapted for use atop a horizontal table top surface. The electric grill plate includes a plate component, and according to a major aspect of the invention, the plate component includes a frustum-shaped cooking surface (e.g., a circular cone-shaped surface with the apex removed). The frustum-shaped cooking surface slopes downwardly in all horizontal directions from a central vertical axis in order to promote drainage from foodstuffs during cooking. According to another aspect of the invention, one embodiment also includes means for holding the foodstuffs from sliding downwardly across the cooking

surface, including ribs on the plate component that protrude upwardly from the cooking surface.

According to yet another aspect of the invention, means are provided in the form of a cup for containing marinade in proximity to the cooking surface of the plate component. The plate component defines a central opening and the cup has a size and shape adapted to removably fit within the central opening. The cup is adapted for movement between a first position of the cup and a second position of the cup such that the amount of heat transfer to the cup in the first position is greater than the amount of heat transfer to the cup in the second position.

According to still another aspect of the invention the cup includes a lip having spaced apart indentations (e.g., scallops) for receiving skewers. An upstanding flange (a fence) circumscribing a lower marginal edge portion of the plate component retains the foodstuffs on the cooking surface, and it also includes spaced apart indentations along the upstanding flange for receiving skewers. The indentations also provide a flow path for steam to pass out from under the cover. Air flows upwardly through the central opening in the plate component, then downwardly across the foodstuffs, and out the indentations in the upstanding flange.

The electric grill plate is suitable for submersion in water for cleaning purposes, and a grease outlet opening is provided through the plate component together with a removable grease drawer aligned with the grease outlet opening. The following illustrative drawings and detailed description make the foregoing and other objects, features, and advantages of the invention more apparent.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 of the drawings is a front, top, and left side perspective view of a table top grill constructed according to the invention, showing the cover, electric grill plate, and base disassembled;

FIG. 2 is an enlarged perspective view with the cover omitted, showing the electric grill plate and base assembled, the temperature controller connected to the rest of the electric grill plate, and the marinade cup in the lower high-heat position;

FIG. 3 is a perspective view of the marinade cup and the upper portion of the plate component in which the cup opening is located;

FIG. 4 is a further enlarged elevation view of the marinade cup and the upper portion of the plate component, with portions in cross section to show details of the marinade cup in the lowered high-heat position;

FIG. 5 is a view similar to FIG. 4 with the marinade cup in the raised low-heat position; and

FIG. 6 is a left side view of the table top grill on a horizontal table top surface, with some portions broken away and other portions in cross section to further illustrate details of construction.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIGS. 1–6 of the drawings illustrate various aspects of a table top grill 10 constructed according to the invention. Generally, the table top grill 10 includes a base 11 (FIGS. 1, 2 and 6), an electric grill plate 12 (FIGS. 1, 2, and 6) that is supported by the base 11, and a cover 13 (FIGS. 1 and 6) that sets atop the electric grill plate 12. Those components are adapted to be conveniently disassembled for cleaning purposes and reassembled for use.

The base **11** is composed of a suitably rigid material (e.g., plastic or metallic). It incorporates suitable feet and handle members so that a user can conveniently transport it manually and set it atop a table top or counter top for use. It is adapted to removably receive the electric grill plate **12**.

The electric grill plate **12** utilizes known technology in some respects in that it includes a non-stick coated, heavy gauge aluminum plate component **14** (FIGS. 1–6) and a heating element component **15** (FIG. 2) in heat conducting relation to the plate component **14**. The heating element component **15** is not illustrated in detail because it is a known type of electric component, and it is designated only generally in FIG. 2 by a leadline to a temperature controller **16** which is part of the heating element component **15** for purposes of this description. The heating element component **15** may include, for example, a 1200 watt round coiled heating element inside the plate component **14**, two male connectors (such as the one male connector **17** visible in FIG. 6), and a temperature probe outfitted temperature controller (i.e., the temperature controller **16**) that plugs onto the male connectors. Based upon the foregoing and subsequent descriptions, one of ordinary skill can readily fabricate these components to function as described, and the components are all arranged so that the electric grill plate **12** is adapted to removably fit in the base **11**.

The cover **13** is preferably a see-through tempered glass component that fits removably atop the plate component **14**. It sets atop the plate component **14** during cooking, bearing against the plate component **14** and not the foodstuffs, and it has an overall diameter of about 14.5 inches, which is the overall outside diameter of the illustrated plate component **14**. As a further idea of size, the illustrated table top grill is about 7.5 inches in overall height and weighs about 8.5 to 9.0 pounds. That makes it conveniently transported manually and small enough to fit conveniently on a typical table top surface. Of course, those specifications may vary quite a bit within the scope of the claims and without departing from the broader aspects of the invention.

According to a major aspect of the invention, the plate component **14** includes a frustum-shaped cooking surface **18** (FIGS. 1–6). In other words, the cooking surface **18** is similar to the surface of a frustum in the sense that a frustum is that part of a cone-shaped solid next to the base that is formed by cutting off the top (the vertex) by a plane parallel to the base, and the cooking surface **18** slopes downwardly in all horizontal directions from a central vertical axis **19** (FIGS. 2, 5, and 6). The illustrated cooking surface **18** is symmetrical about the vertical axis **19** and it slopes at about 15.0 degrees with the horizontal (corresponding to 75.0 degrees with the vertical).

The sloping cooking surface **18** promotes downward drainage of grease and other liquids emitted from foodstuffs during cooking. An opening **20** through the plate component **14** (FIG. 6) provides a path for those liquids to flow so that they can drip into a grease collection drawer **21** as depicted by the arrow through the opening **20**. The grease collection drawer **21** removably slides into the base **11** in alignment with the opening **20**.

A pattern or array of protrusions or ribs **22** extend upwardly from the cooking surface **18**. They function as means for holding foodstuffs (not shown) that have been placed upon the cooking surface **18** from sliding downwardly across the cooking surface **18**. Only two ribs **22** are designated in FIG. 1 for illustrative convenience in order to keep the drawings less cluttered. Only two ribs **22** (a different two) are designated in FIG. 2 and only two ribs **22** (another different two) are designated in FIG. 6 for the same reason. The illustrated ribs **22** are concentric circular arcs centered on the vertical axis **19**.

According to another aspect of the invention, there is provided means in the form of a cup **23** (FIGS. 1–6) for containing up to about six fluid ounces of marinade in proximity to the cooking surface **18** of the plate component **14**. The plate component **14** defines a central opening **24** (FIG. 3) centered on the vertical axis **19**, and the cup **23** has a size and shape adapted to removably fit within the central opening **24**. The cup **23** is cylindrical and composed of a heavy gauge aluminum alloy coated with a non-stick material. It includes a rim **25** (FIGS. 3–5) with a downwardly facing bearing surface **26** (FIGS. 4 and 5), and the plate component **14** includes a collar **27** (FIGS. 3–5) with an upwardly facing bearing surface **28** circumscribing the central opening **24** (FIGS. 3 and 5).

Three evenly spaced protrusions or splines are provided on the cup **23**, only two protrusions **29** and **30** being visible in FIGS. 3–5. The three protrusions mate with three evenly spaced grooves **31**, **32**, and **33** in the collar **27**. With the protrusions and grooves aligned, the cup sets upon the collar so that the bearing surface **26** lies flat upon the bearing surface **28** for maximum heat transfer from the plate component **14** to the cup **23**. This is referred to as a first or high-heat position of the cup **23**, and it is illustrated in FIG. 4. By lifting the cup **23** slightly so that the protrusions clear the channels, the cup **23** can be rotated slightly so that the protrusions and channels are not aligned. In that case, the protrusions set upon the bearing surface **28**, leaving space between the bearing surface **26** and the bearing surface **28**. This is referred to as a second or low-heat position of the cup **23**, and it is illustrated in FIG. 5. Thus, less heat is transferred to the cup **23** in the second position than is transferred to the cup **23** in the first position.

Another aspect of the cup **23** is that the lip **25** includes spaced apart indentations or scallops **34** on 0.75-inch centers around the lip **25** for receiving skewers, such as the skewer **35** illustrated in FIG. 6. One such scallop **34** is designating in each of FIGS. 3–6). A user rests the skewer **35** in a selected one of the scallops **34**. The plate component **14** also has scallops. The plate component **14** includes a 1.025-inch high upstanding flange or fence **36** (FIGS. 1, 2, and 6) around a lower marginal edge portion of the plate component **14**. The fence **36** serves the function of retaining foodstuffs on the cooking surface **18** and it also includes scallops **37**, only one scallop **37** being designated in each of FIGS. 2 and 6. The scallops **37** are indentations that receive skewers like the skewer **35**. They also allow air and steam to escape from underneath the cover **12**. In other words, they provide a flow path for steam to pass out from under the cover after it passes over the foodstuffs being cooked.

Thus, the invention provides a lightweight, portable, electric table top grill with various combinations of new features, including a frustum-shaped cooking surface that promotes drainage from foodstuffs during cooking. That feature combines in the illustrated grill with ribs, two-position marinade cup, skewer scallops, perimeter fence, an improved flow path for steam, see-through glass cover, removable grease tray, cool-to-touch base, and submersible electric grill plate. Although an exemplary embodiment has been shown and described, one of ordinary skill in the art may make many changes, modifications, and substitutions without necessarily departing from the spirit and scope of the invention.

What is claimed is:

1. An appliance for cooking foodstuffs, comprising:

an electric grill plate adapted for use atop a horizontal table top surface;

a plate component of the electric grill plate;

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a frustum-shaped cooking surface on the plate component that slopes downwardly in all horizontal directions from a central vertical axis in order to promote drainage from foodstuffs during cooking;

a cover adapted to rest atop the plate component over the cooking surface; 5

rib means for holding the foodstuffs from sliding downwardly across the cooking surface, including ribs on the plate component that protrude upwardly from the cooking surface; 10

fence means for retaining the foodstuffs on the cooking surface, including an upstanding flange circumscribing a lower marginal edge portion of the plate component;

indentation means for holding skewers and for providing a flow path for steam to pass out from under the cover,

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including spaced apart indentations along the upstanding flange;

cup means for containing marinade in proximity to the cooking surface of the plate component, the plate component defining a central opening, said cup means having a size and shape adapted to removably fit within the central opening, and said cup means including a lip having spaced apart indentations for holding the skewers; and

the combination of a grease outlet opening through the plate component and a removable grease drawer aligned with the grease outlet opening.

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